March 18, 2004

Mr. Bob Hutchinson
Marion County Business Services Department
Facilities Management Division
100 High Street NE
Salem, OR 97301

REFERENCE: COURTHOUSE SQUARE OFFICE BUILDING
FLOOR CONDITION ASSESSMENT
DEA PROJECT NO. MARN0000-0030

Dear Bob:

At your request, I met with you on March 4th, 2004 at the Courthouse Square office building located at 555 Court Street in Salem, Oregon. The purpose of this meeting was to observe various sections of the floor where cracks or vertical irregularities have been identified, assess the physical condition of the floor and make recommendations for further study if required.

Background

According to the existing structural drawings, the floor framing consists of a ten-inch thick post tensioned flat concrete slab which spans in two directions, supported by concrete columns and by concrete bearing/shear walls that surround the elevator and stair towers. Post-tensioning tendons are grouped in the north/south span direction with three bays measuring 38'-0", 26'-0" and 38'-0". Post tensioning tendons are distributed in the east/west span direction with ten bays at 28'-0" and one at the east end at 18'-0".

The locations and conditions observed on our site visit are as follows:

Third floor – Men's Restroom (East)

Two cracks were observed in the grout joint between floor tiles. One crack was located parallel to the dividing wall between the entry and the restroom and the other crack was perpendicular to the wall. Both cracks extended from the end of the dividing wall to the south and east walls of the restroom respectively.

The tile on either side of these lines appeared to be slightly raised above the floor. A few tiles near the dividing wall had been removed and we were able to observe the floor below the tile. There did not appear to be any cracks in the floor and the adhesive for the tile was minimal.

Review of the existing contract documents showed that the floor at this restroom was recessed to allow for a sloped tile floor over thickset mortar. It appears that the cracks in the grout between the floor tiles

are cosmetic. The cause of the cracks may be due to water infiltration under the tile floor, shrinkage of the thickset mortar or a combination of both. (Reference the attached floor plan for crack locations.)

Fourth floor – Men's Restroom (West)

No cracks were observed in the floor of this restroom, but there were reports that the tile was raised at the same location as the restroom on the third floor. Reference comments for the restroom at the third floor.

Third floor – District Attorney Office (Rm. #3194)

There was a desk set in the northeast corner of the office facing the north wall. During our visit, the tenant mentioned that the drawers on the east side of the desk have trouble staying closed.

There appeared to be a support column in the corner of the office buried in the wall adjacent to the area of concern. Feeling the floor through the carpeting, there appeared to be a raised area in the floor of approximately 2 square feet adjacent to the column. There were no cracks or gaps noted in the north or east wall of the office that would indicate recent vertical movement of the floor slab and there have not been any reports of movement in the ceiling directly below this area.

Review of the existing drawings confirmed that there is a concrete column located in the northeast corner of the office space and that the exterior wall to the north is supported by the slab edge. The interior partition wall on the east side of the office is supported by the floor slab and extends most of the way across the floor to the first interior column to the south. There were no signs of distress in the exterior wall or interior partition wall that would indicate vertical movement of the structural framing, so it appears that the lump observed has been there since before the interior finishes were installed.

Third floor – Corridor north of west elevators

A raised area of approximately 2 square foot of the floor surface was observed near the south wall of the corridor adjacent to the west elevator shaft. The floor surface was carpeted, so there was no visible cracking of the floor slab. There were also no cracks in the corridor walls or displacement in the ceiling below that would indicate vertical movement of the floor.

According to the existing drawings, the floor area in question is adjacent to the concrete shear wall at the elevator shaft on the south side of the corridor. There is also a concrete column across the hall directly opposite the elevator shaft. Based on the short slab span and lack of cracking in the finished surfaces, it appears that the raised floor observed has been there since before the interior finishes were installed.

Ground floor – Corridor north and south of west elevators

Cracks were observed in the terrazzo floor finish at the corridors to the north and south of the west elevators. These cracks were not more than $1/16^{th}$ inch wide and are oriented perpendicular to the corridor at fairly uniform intervals. (12 feet on center in the corridor to the south and 6 feet on center at the corridor to the north.) These cracks were reported to have existed since the building was first occupied.

According to the existing drawings there is a concrete bearing/shear wall surrounding the west elevator shaft and stair tower. The cracks in the floor finish are adjacent to the long walls at the north and south side of the stair well. Since these cracks are parallel to the slab span and adjacent to a supporting element, which is a long concrete wall, it appears that these cracks are due to shrinkage of the concrete slab relative to the wall.

Ground floor – Expansion joint at Bus Mall

At the isolation joint in the ground floor slab between the Courthouse Square office building and the bus mall, the gap appears to have increased as much as 0.4 inches, causing the joint filler to separate from the brick paving units and one of the metal plate joint covers over the brick to loose support at one side. This increased gap appears to be the result of concrete shrinkage and is a cosmetic problem, since the structure is supported on either side of the joint by an independent row of columns.

Conclusions and recommendations

The cracks and raised areas observed during our site visit appear to be cosmetic and should not have an impact on the strength of the floor framing. The following is a summary of our conclusions and recommendations.

Restrooms: Cracks in the restrooms appear to be due to shrinkage of the bedding mortar, but could also be caused by inadequate adhesive between the tile and mortar. Additional shrinkage of the mortar is not anticipated. We recommend that the floor surface is cleaned as required and the tile re-installed with a uniform coating of adhesive, followed by grout and sealer.

Lobby: Cracks in the ground floor corridors appear to be due to shrinkage where the floor is restrained by concrete shear walls. No further action is required.

Raised floor areas at third floor: The portions of raised floor appear to have been in place since the original building construction. No further action is required. The floor may be leveled by grinding the surface, provided that non-destructive testing is performed to determine the cover over embedded reinforcement.

This report was based on a brief review of the existing structural drawings and a limited site visit for the purpose of observing the general physical status of the existing floor construction. Although there were no apparent problem areas noted, it must be understood that an exhaustive review was not performed and that concealed problems may exist.

Observations, conclusions and recommendations contained in this report are based on our best engineering judgement. Concealed problems with the construction of the existing building may exist that cannot be revealed through our review. David Evans and Associates, Inc., therefore can in no way warrant or guarantee the condition of the existing construction.

Sincerely,

DAVID EVANS AND ASSOCIATES, INC.

Philip Boultinghouse, P.E., S.E.
Associate

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Attachments/Enclosures:

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